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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,021	06/26/2003	John W. Toulmin	GLH 08-895079	5572
27667	7590	12/29/2004	EXAMINER	
HAYES, SOLOWAY P.C. 130 W. CUSHING STREET TUCSON, AZ 85701			HUNNINGS, TRAVIS R	
			ART UNIT	PAPER NUMBER
			2632	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,021

Applicant(s)

TOULMIN ET AL.

Examiner

Travis R Hunnings

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-24 is/are rejected.
- 7) ☒ Claim(s) 5-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Canada on 6/26/2002. It is noted, however, that applicant has not filed a certified copy of the 2,391,681 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 13, 18, 20 and 24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Burgess et al. (Burgess; US Patent 3,757,511).

Regarding claim 1, Burgess discloses *Light Emitting Diode Display for Electronic Timepiece* that has the following claimed subject matters:

The claimed assembly of light emitting diodes (LEDs) is met by the light emitting diodes (col5 10-50);

The claimed control circuit operable to drive said LEDs is met by the control circuit adjusting the output of the light emitting diodes (col5 10-50);

The claimed one or more environmental sensors coupled to said circuit is met by the ambient light sensor being connected to the control circuit (col7 23-27);

The claimed means for receiving data and or measurements from said environmental sensors is met by the ambient light sensor being connected to the control circuit (col7 23-27);

The claimed means for calculating optimal operating parameters for said LEDs, based on said environmental data and/or measurements is met by the control circuit controlling the brightness of the light emitting diodes based on the ambient light around the LEDs (col5 10-50);

The claimed means for driving said LEDs in accordance with said calculated optimal operating parameters is met by the control circuit controlling the brightness of the light emitting diodes based on the ambient light around the LEDs (col5 10-50).

The term "warning light" in the preamble of the claim is given no weight in the prosecution because it does not breathe into the body of the claim.

Regarding claim 13, the claimed control circuit being operable to provide separate control signals to separate LED modules is met by the control circuit providing control signals to separate lights on the watch face to correctly display different times throughout the day.

Regarding claim 18, the claimed environmental sensor being selected from the group consisting of ambient temperature, internal temperature, ambient light level, etc...

is met by the ambient light sensor detecting the amount of ambient light around the device (col5 10-50 and col7 23-27).

Regarding claim 20, the claimed selectively applied light-control-film to direct and focus light, rather than expensive and complex curved or circular circuit assemblies, lenses or reflector is met by the filter (31) focusing the output of the light emitting diodes (col11 62-67 and col12 1-24).

Regarding claim 24, the claim is interpreted and rejected as claim 1 stated above.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Nishizawa et al. (Nishizawa; US Patent 4,329,625).

Regarding claim 1, Nishizawa discloses *Light Responsive Light-Emitting Diode Display* that has the following claimed limitations:

The claimed assembly of light emitting diodes (LEDs) is met by the light emitting diodes (col3 15-32);

The claimed control circuit operable to drive said LEDs is met by the current controlling circuit controlling the current to the LEDs (col3 15-32);

The claimed one or more environmental sensors coupled to said circuit is met by the unipolar photo-transistor (col3 15-32);

The claimed means for receiving data and or measurements from said environmental sensors is met by the unipolar photo-transistor controlling the current provided to the light emitting diode circuit (col3 15-32);

The claimed means for calculating optimal operating parameters for said LEDs, based on said environmental data and/or measurements is met by the unipolar photo-transistor allowing more current to flow to the light emitting diodes when the ambient light is higher so that it is easier to see the LEDs (col3 15-32);

The claimed means for driving said LEDs in accordance with said calculated optimal operating parameters is met by the unipolar photo-transistor allowing more current to flow to the light emitting diodes when the ambient light is higher so that it is easier to see the LEDs (col3 15-32).

The term "warning light" in the preamble of the claim is given no weight in the prosecution because it does not breathe into the body of the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Lebens et al. (Lebens; US Patent 6,305,818).

Regarding claim 2, Burgess discloses all the claimed limitations except for the claimed control circuit comprising a microprocessor. Lebens discloses *Method and Apparatus for L.E.D. Illumination* that teaches a control circuit in the form of a microprocessor that controls the light level of light emitting diodes. Using a microprocessor as the control circuit in the device of Burgess would make the construction of the device easier because of the built-in capability of microprocessors. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Burgess according to the teachings of Lebens to use a microprocessor as the control circuit.

Regarding claim 9, Burgess discloses all the claimed limitations except for the claimed environmental sensors including an analog-to-digital converter used to detect and measure the electrical supply voltage and said control circuit is operable to adjust power to said assembly of LEDs in response to the available voltage level. Lebens teaches a control circuit that measures the battery voltage of the device and adjusts the power to the LEDs to account for dropping voltage (col2 39-48). Examiner takes official notice that it is well known to one of ordinary skill in the art to use an analog-to-digital converter to measure analog values (such as battery voltage) and provide digital equivalents of those analog values to digital components (such as the microprocessor disclosed by Lebens (col8 45-58)). It would be beneficial to include an analog-to-digital converter in the device of Burgess to monitor the voltage of the batteries and allow the control circuit to adjust the power directed to the LEDs in order to account for power

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drain during regular use of the device. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Burgess according to the teachings of Lebens to include an analog-to-digital converter to detect voltage levels and allow the control circuit to adjust the power supplied to the LEDs in response to the detected voltage level.

Regarding claim 10, Burgess discloses all the claimed limitations except for the claimed means for driving comprises means for providing pulsed direct-current to said assembly of LEDs. Lebens teaches adjusting the pulse width and/or pulse frequency of the current provided to the LEDs in response to a change in battery voltage level (col2 39-48). Using the pulse width and/or pulse frequency modulation in response to changing voltage levels is a good option in the device of Burgess because it provides the user with a wide variety of ways to change the output of the control circuit in order to conserve battery power. Modifying the pulse width of the driving current of the LEDs would constitute providing pulsed direct-current as claimed. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Burgess according to the teachings of Lebens to provide pulsed direct-current to the LEDs.

Regarding claim 11, the claim is interpreted and rejected as claim 10 stated above. Modifying the pulse frequency would clearly constitute adjusting the pulse timing of the driving current of the LEDs.

Regarding claim 12, the claim is interpreted and rejected as claim 10 stated above. Modifying the pulse width of the driving current of the LEDs would clearly constitute adjusting the pulse duration of the driving current of the LEDs. Modifying the pulse frequency would clearly constitute adjusting the pulse repetition rate of the driving current of the LEDs.

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Lebens and further in view of Stingone, Jr. (Stingone; US Patent 6,263,280).

Regarding claim 3, Burgess and Lebens disclose all the claimed limitations except for the claimed microprocessor including means for communicating over a network. Stingone discloses *Global Locating and Tracking Method and System* that teaches a wristwatch device that can communicate with a network in order to send information regarding the user of the wristwatch's location (col1 42-63). It would add safety to the device of Burgess and Lebens to modify the microprocessor to include elements that allow the wristwatch to communicate with a network in order to provide information regarding the location of the user of the wristwatch. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Burgess and Lebens according to the teachings of Stingone to modify the microprocessor to allow the device to communicate across a network.

Regarding claim 4, Burgess, Lebens and Stingone disclose all the claimed limitations. The claimed microprocessor performing said calculations using a lookup table is met by the microprocessor using a lookup table to do the comparisons needed to adjust the light output (col8 45-58).

8. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Stingone.

Regarding claim 14, Burgess discloses all the claimed limitations except for the claimed control circuit being operable to communicate with other external devices and networks. Stingone teaches a wristwatch device that upon receiving a command from the user can communicate with a network in order to send information gained from GPS satellites regarding the user of the wristwatch's location (col1 42-63). It would add safety to the device of Burgess to modify the microprocessor to include elements that allow the wristwatch to communicate with a network in order to provide information regarding the location of the user of the wristwatch. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Burgess according to the teachings of Stingone to modify the microprocessor to allow the device to communicate across a network.

Regarding claim 15, the claim is interpreted and rejected as claim 14 stated above. The user manually activating the device meets the claimed control circuit including means for receiving commands to alter its operation (ie going from a dormant state to a transmitting state).

Regarding claim 16, the claim is interpreted and rejected as claim 14 stated above. The device transmitting data regarding its location in the form of global positioning data meets the claimed transferring data from various environmental sensors.

Regarding claim 17, the claim is interpreted and rejected as claim 14 stated above. The device transmitting data regarding its location in the form of global positioning data meets the claimed transferring data about its own status.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Weindorf (US Patent 6,717,559).

Regarding claim 19, Burgess discloses all the claimed limitations except for the claimed system further comprising a temperature sensor electrically coupled to said control circuit, and wherein said control circuit is operable to derate said LEDs with temperature. Weindorf discloses *Temperature Compensated Parallel LED Drive Circuit* that teaches a light emitting diode circuit with a temperature sensing element and a

control circuit that derates the intensity of the LEDs as a function of the measured temperature (col1 53-63). By measuring the temperature of the LEDs and derating the intensity of the light emitting diodes would allow the device of Burgess to protect the LEDs from overheating. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Burgess according to the teachings of Weindorf to include a temperature sensor coupled to the control circuit and modifying the control circuit to derate the LEDs with respect to the temperature measured.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa in view of Dick et al. (Dick; US Patent 5,636,057).

Regarding claim 21, Nishizawa discloses all the claimed limitations except for the claimed light being polygon in cross-section and including light-control-film to refract light from said assembly of LEDs omnidirectionally. Dick discloses *Prismatic Toroidal Lens and Traffic Signal Light Using this Lens* that teaches a light that is polygonal in cross section (figures 1, 4 and 5) and uses light-propagating material to refract light the light produced by the light sources to specific spatial points (col1 53-63). Modifying the device of Nishizawa to include light-propagating material to refract light and to arrange the light sources in a polygonal arrangement would allow the light source to be better seen by users and those that are to be alerted by the device. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the

device disclosed by Nishizawa according to the teachings of Dick to arrange the light source in a polygonal shape and to provide light-propagating material to direct the light in multiple directions.

11. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa in view of Petrick (US Patent 6,525,668).

Regarding claim 22, Nishizawa discloses all the claimed limitations except for the claimed light comprising a plurality of LED sub-assemblies on rigid printed circuits, said rigid printed circuits being connected to one another such that the separate LED sub-assemblies are aimed in different directions. Petrick discloses *LED Array Warning Light System* that teaches a lighting system with a plurality of LED sub-assemblies arranged on rigid printed circuit boards with electrically conductive lines for conducting power to the LEDs with the sub-assemblies arranged so that the LEDs point in different directions (figure 1 and col2 34-62). Arranging the LEDs of Nishizawa in the same configuration as Petrick would increase the usefulness of the system of Nishizawa by light indication in all directions and it would also allow for quick replacement of part of the LEDs if one of the sub-assemblies broke. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Nishizawa according to the teachings of Petrick to arrange the LEDs on separate rigid circuit boards with electrical connections and arrange them to point in different directions.

Regarding claim 23, the claim is interpreted and rejected as claim 22 stated above.

Allowable Subject Matter

12. Claims 5-8 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lagoni, *LED Channel Number Display*...US Patent 4,181,915

Mizuno et al. *Display Intensity Control*... US Patent 4,388,558

Dussureault, *LED Traffic Light Intensity*... US Patent 6,236,331


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis R Hunnings whose telephone number is (571) 272-3118. The examiner can normally be reached on 8:00 am - 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRH


DANIEL WU
SUPERVISORY PATENT EXAMINER
12/26/04